

SECTION 3.3

HAZARDS AND HARZARDOUS MATERIALS

3.3 Hazards and Hazardous Materials

Section 3.3.1 discusses hazards from wildland fires and Section 3.3.2 discusses impacts from hazardous materials.

3.3.1 Wildfire Hazards

Fire Protection Plans (FPPs) and this Environmental Impact Report (EIR) section have been prepared as part of the entitlement package submittal for the proposed Merriam Mountains Master Planned Community, including Tentative Map 5381. The project lies within the Deer Springs Fire Protection District (DSFPD) except for a total of approximately 16 ac. (77 dwelling units), which lie within the San Marcos Fire Protection District (SMFPD). Two FPPs have been prepared for this project and are included as Appendix K to the Merriam Mountains Specific Plan Draft EIR, dated August 2007.

A diverse and experienced fire prevention planning team was assembled for this project to perform a variety of tasks, among them to:

- Gather site-specific climate, terrain, and fuel data
- Process and analyze the data using the latest technology
- Predict fire behavior using scientifically based fire behavior models
- Analyze and guide design of proposed infrastructure
- Assess the risks associated with the proposed project and site
- Prepare this EIR section detailing how fire risks will be mitigated through a system of fuel treatment, structural ignition-resistance enhancements, and fire protection delivery system upgrades
- Provide critical peer review of draft FPPs culminating in this EIR section.

The project's FPPs were prepared to meet or exceed standards set forth in local, County of San Diego, and state codes, including the Deer Springs FireSafe Council Community Wildfire Protection Plan (2005); DSFPD Ordinance 2002-03; San Diego Fire Code; Article 86 of the California Fire Code; State of California Building and Fire Code SFM Amendments; California Public Resource Code Sections 4290 and 4291; and California Code of Regulations Title 14, Sections 1270–1299, “SRA Fire Safe Regulations.” The purpose of the FPPs is to generate and memorialize the fire safety requirements of the County of San Diego, DSFPD, and SMFPD, as applicable. The FPPs serve as implementation plans for the preparation of final construction documents that shall incorporate the fire protection requirements detailed therein. The

recommendations provided in the FPPs are based on site-specific characteristics and incorporate input from the Fire Authority (or Authorities) Having Jurisdiction (FAHJ). The “recommendations” therein become “requirements” with the FAHJ’s approval of the FPPs.

It should be noted that in accordance with the County of San Diego Wildland Fire and Fire Protection Guidelines for Determining Significance (March 2007), Shelter in Place (SIP) strategy is defined as follows:

In the event secondary access for a new proposed community or institution is unattainable due to topographical or geographical constraints, a SIP design strategy may be considered for the proposed project. SIP is a last resort design concept with relocation (evacuation) of residents to a safe location being the preferred action.

The proposed project is not considered to meet the definition of a SIP community and evacuation of residents to a safe location will be the preferred action in the event of a wildfire.

The Merriam Mountains project includes the following characteristics that are important considerations for FPP analysis and preparation:

- San Diego County Tentative Map No.—5381
- Assessor’s Parcel Numbers—172-091-04, 07, 21, and 25; 172-220-11, 14, 16, 17, and 18; 174-190-12, 13, 20, 41, 43, and 44; 174-210-01, 05, 07, 08, 11, 12, 17, and 18; 174-211-04, 05, 06, and 07; 174-280-11 and 14; 174-290-02; 178-100-05 and 26; 178-101-01, 16, 17, 25, 26, 27, and 28; 178-220-17; 186-611-01, 07, 08, 09, 11, 14, 15, 16, 17, and 20; 186-250-13; 187-540-49, 50, and 51
- Separate FPPs for SMFPD and DSFPD
- Elevations—ranging from 800 to 1,765 ft above mean sea level (amsl)
- Vegetation/fuels—primarily chaparral, Diegan sage scrub
- Gross development acreage—598 ac.
- Gross fuel treatment acreage—537 ac.
- Gross Biological Open Space acreage—1,192 ac.
- Number of proposed units/lots—2,700
- Type of units—estate residences, detached single-family residences, condominiums, and apartments
- Detached unit minimum lot size—4,000 sq ft
- Detached unit maximum lot size—5 ac.

- Ingress/egress routes—three primary and one emergency
- Fuel treatment zones—150 ft to several hundred feet wide
- 2.9 million dollars of mitigation fees for capital improvements as required by the County of San Diego's Fire Mitigation Fee Ordinance (Title 8 Zoning and Land Use Regulations, Division 10 Dedication of Land or Payment of Fees, Chapter 3 Fire Mitigation Fees)
- 1.6 million dollars annual funding for DSFPD fire facilities equipment and ongoing service-level maintenance (anticipated revenue for the DSFPD based on the Fire Suppression Fee, Standby/Availability Fee, and property taxes through payment by the developer)
- Retail shopping center—10.1 ac.

3.3.1.1 Discussion of Existing Conditions Relating to Wildfire Hazards

The proposed Merriam Mountains project is situated in an area that, due to its steep terrain, heavy fuels, adjacent ignition sources, and regional fire history, is subject to periodic wildfires. The project area and nearby communities of Castle Creek, Hidden Meadows, and Lawrence Welk Resort, are all located in a High Fire Hazard Severity Zone, as designated by the California Department of Forestry and Fire Protection (CDF). The hazard ratings for the area are presented in Figure 3.3-1. Wildland fires are a common natural event in most of Southern California with a long and extensive history. Southern California landscapes include a diverse range of plant communities, including vast tracts of brush-covered lands, like those found on the Merriam Mountains. Wildfire in this Mediterranean-type ecosystem ultimately affects the structure and functions of vegetation communities (Keeley 1984) and will continue to have a substantial and recurring role (Keeley and Fotheringham 2003). Supporting this are the facts that native landscapes, from forest to grasslands, become highly flammable each fall and the climate of Southern California has been characterized by fire climatologists as the worst fire climate in the United States (Keeley et al. 2004) with high winds (Santa Ana) occurring during autumn after a six-month drought period each year.

Research suggests that successful wildfire suppression efforts over the last several decades may have aided the accumulation of fuels in natural communities (Minnich 1983; Minnich and Chou 1997) and that creating mosaics of vegetation ages by prescribed burning reduces wildfire spread (Minnich 1998). However, recent research points to large fires, such as the 2003 fires in San Diego County, as being only minimally constrained by varying fuel loads (Moritz et al. 2004) during extreme fire weather inherent to the region. Additionally, human influences have altered the natural fire regime, accounting for most of the burned acreage in Southern California (Keeley 1984) each year. Based on this research, the anticipated growing population of North County Wildland Urban Interface (WUI) areas, and the region's fire history, it can be anticipated that

large wildfires will occur in north San Diego County, with the Merriam Mountains, and surrounding communities, being no exception. Therefore, it will be critical that the latest fire protection technologies, developed through intensive research and real world wildfire observations and findings by fire professionals, for both ignition-resistant construction and for creating defensible space in the ever-expanding WUI areas, are implemented and enforced.

Biological Open Space

The 2003 fires in San Diego, San Bernardino, and Los Angeles counties demonstrated the role of dedicated open space as a significant vehicle that, in some situations, facilitates the movement of wildfire conflagrations from native open space into urbanized areas during adverse and extreme environmental conditions. The Natural Communities Conservation Program (NCCP) process enables development of large areas with the caveat that significant area be placed into habitat conservation easements. The resulting Biological Open Space areas, which are commonly linked by natural vegetation corridors to federal, state, county, city, or private land, often include natural vegetation dominated by ecosystems dependent upon occasional fire for their health and survival. The Merriam Mountains project incorporates significant Biological Open Space areas adjacent to its borders. Biological Open Space areas provide immeasurable benefits to special-status species and residents. However, they may also represent significant wildfire hazard if diligent efforts are not made to locate preserves and communities strategically.

Recent research indicates that Biological Open Space areas, when designed correctly, as proposed for the Merriam Mountains project, can reduce the incidence of property damage or loss of life. In the Otay Fire of 2003 near Chula Vista, effective preserve design assisted in reducing loss of humans and structures (Keeley et al. 2004). In that particular case, large expanses of continuous open space, absent islands of homes within it, allowed focused firefighter defense of the WUI and helped avoid impacts to urbanized areas.

Studies indicate that fire spread from open space areas to urban areas and from urban areas to open space areas occurs primarily in older communities where construction and landscaping does not conform to the latest code and where Biological Open Space land boundaries have been hard-lined without consideration for adequate Fuel Treatment Zones (FTZs) (Post Fire Analysis Team findings, Cedar and Paradise Fires 2003). In order to address these issues throughout San Diego County where residences have been constructed at ridge tops adjacent to open space, the fire and environmental agencies entered into a Memorandum of Understanding (MOU) in 1998 that enables local fire chiefs to implement fuel reduction in hazardous areas. When invoked, the MOU allows fuel reduction to a distance of 100 ft from exposed structures, even within existing preserve areas. The 100 ft of fuel treatment has been widely accepted at the state (Public Resource Code) and county level as a sufficient fuel treatment area in which to provide

defensible space and fire intensity reduction on up to moderate slopes. Finney and Cohen (2003) research supports the 100 ft FTZ through their studies of structure ignition and resulting conclusion that the “*characteristics of a home’s immediate surroundings within 30 meters principally determine the potential for wildland-urban fire destruction.*”

Fire History

Fire history is an important component of the FPPs. Fire history information can provide an understanding of fire frequency, fire type, most vulnerable project areas, and significant ignition sources, for instance. Figure 3.3-2, ~~Merriam Mountains Vicinity Fire History~~ CDF Fire History, presents a graphical view of the Merriam Mountains’ and neighboring communities’ recorded fire history. As presented in the exhibit, there have been several fires recorded by CDF on their Fire and Resource Assessment Program (FRAP) database in the direct vicinity of the project area but no fires recorded within the property boundaries. The most notable recent fire, occurring within 5 mi. of the project site was the 56,000 ac. Paradise fire of 2003. Numerous other fires ranging from 14 to 40,000 ac. have occurred within 5 mi. of the project site dating back to 1935. Not included in the CDF data are multiple smaller fires throughout inland North County, including two fires along Old Castle Road to the east of the project area and numerous fires along the Interstate 15 (I-15) corridor to the north and south of the project area during the summer of 2006. Rapid response to these fires resulted in their containment before they could grow to the size that would include them in CDF’s database.

As indicated, the Merriam Mountains project’s landscape and surrounding areas to the east and west of I-15 have not burned in approximately 100 years or more. The Merriam Mountains, as with much of the open space in the region, in their present state, represent a potential threat to the many existing homes scattered along Deer Springs Road, the small avocado and citrus ranches and homes along the western side of the Merriam Mountains, and the City of San Marcos and beyond, which are all at immediate risk from a Santa Ana wind-driven wildfire.

Fire Behavior Modeling

Fire behavior modeling for the Merriam Mountains project was conducted by FireWise2000. The methods, inputs, and results of that effort are detailed in Appendix K to the Merriam Mountains Specific Plan Draft EIR, dated August 2007.

~~of this report.~~ This section provides additional understanding of fire behavior modeling and offers readers perspective on its use and history.

Fire behavior modeling has been used by researchers for approximately 50 years to predict how a fire will move through a given landscape (Linn 2003). The models have had varied complexities

and applications throughout the years. One model has become the most widely used for predicting fire behavior on a given landscape. That model, known as “Behave,” was developed by the U.S. government (USDA Forest Service, Rocky Mountain Research Station) and has been in use since 1984. Since that time, it has undergone continued research, improvements, and refinement. The current version, BehavePlus 3.0.1, includes the latest updates incorporating years of research and testing. Numerous studies have been completed testing the validity of the fire behavior models’ ability to predict fire behavior given site-specific inputs. One of the most successful ways the model has been improved has been through post-wildfire modeling (Brown 1972; Lawson 1972; Sneeuwjagt and Frandsen 1977; Andrews 1980; Brown 1982; Rothermel and Rinehart 1983; Bushey 1985; McAlpine and Xanthopoulos 1989; Grabner, et al. 1994; Marsden-Smedley and Catchpole 1995; Grabner 1996; Alexander 1998; Granber et al. 2001; Arca et al. 2005⁴). In this type of study, Behave is used to model fire behavior based on pre-fire conditions in an area that has recently burned. Real-world fire behavior, documented during the wildfire, can then be compared to the prediction results of Behave and refinements to the fuel models incorporated, retested, and so on.

Fire behavior modeling includes a high level of analysis and information detail to arrive at reasonably accurate representations of how wildfire would move through available fuels on a given site. Fire behavior calculations are based on site-specific fuel characteristics supported by fire science research that analyzes heat transfer related to specific fire behavior. To objectively predict flame lengths and intensities on the Merriam Mountains project, the BehavePlus 3.0.1 fire behavior fuel modeling system was applied using predominant fuel characteristics, slope percentages, and representative fuel models observed on site. FlamMap, a GIS-based fire behavior software application, was also used by Dudek to provide useful graphical displays of the modeling output.

Fire behavior modeling results in accurate portrayals of flame lengths and fire intensity for planning-level analysis. It is not intended, nor would it be more useful, to predict the moment by moment behavior of a wildfire. In fact, *“the minute-by-minute movement of a fire will probably never be predictable, especially when considering the variable state of weather and the fact that weather conditions are typically estimated from forecasts made many hours before a fire. Nevertheless, field-tested and experienced judgment in assessing the fire environment, coupled with a systematic method of calculating fire behavior yields surprisingly accurate results”* (Rothermel 1983).

The results from the BehavePlus fire behavior modeling conducted by FireWise2000 are presented in detail in Appendix K of the Merriam Mountains Specific Plan Draft EIR, dated August 2007. —Figures 3.3-3 and 3.3-4 present graphical representations using FlamMap GIS-based fire behavior modeling software. The model inputs derived for the Behave modeling were

duplicated by Dudek in the FlamMap modeling with identical results. As presented, wildfire behavior in non-treated heavy chaparral, presented as a fuel model 4, varies based on timing of the fire. A worst-case Santa Ana wind-driven wildfire would result in a fire spread rate of up to 30.79 miles per hour (mph) with highest flame length values reaching approximately 110 ft in specific portions of the property. Spotting is projected to occur from 1 to 2 mi. as experienced in the Gavilan (Fallbrook, February 2002) and Cedar (San Diego County, October 2003) fires.

3.3.1.2 Guidelines for the Determination of Significance

A significant impact with respect to wildfire hazards would occur if the project would result in:

- 1) Exposure of people or the environment to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Guideline Sources

Fire

—The guidelines for significant impacts to fire safety are based on Appendix G of the State CEQA Guidelines, California and County Fire Codes.

3.3.1.3 Analysis of Project Effects and Determination of Significance

Guideline 1: Wildfire Hazards

As mentioned under Section 3.3.1.1 Discussion of Existing Conditions Related to Wildfire Hazards, the project site is located in an area that is subject to periodic wildfires. The proposed Merriam Mountains project would be conditioned to be consistent with regulations that have been enacted to prevent, manage, and mitigate the threat of wildland fires, including the Uniform Fire Code (UFC), the California Code of Regulations Title 14, and San Diego County Fire and Building Codes. The project will reduce fuel continuity through installation of ignition-resistant residences, landscaping, and associated hardscape. Fuel loading will be reduced through strategically located fuel management zones (FMZs) designed to be more than twice as wide as the longest scientifically modeled flame lengths. Using the latest vulnerability intelligence gained from recent catastrophic wildfires and adopted into code (California Building Code, Chapter 7A), this project will incorporate design elements for residences that minimize the potential for ignition, such as Class A roof assembly systems; absence of attic, eave, or other vents on wildland–urban interface exposed sides; and interior, automatic sprinklers. In addition to reducing fuels, setting residences far back from native vegetation, and “hardening” the structures to the latest ignition-resistant construction standards, the project provides critical fire

fighting access to this area that is now lacking, along with a well-planned road system and fire flow water delivery system.

The Merriam Mountains community will experience lower risk of damage to persons and their property than the majority of existing surrounding communities, where older construction does not include the rigid adherence to ignition resistance and where there have not been adequate, dedicated FMZs installed and diligently maintained. In addition, there are three permanent, well-planned ingress/egress routes that will provide for orderly departure from the Merriam Mountains project area, should it ever be needed. There also is one emergency access route into the area, to provide an unhindered route for emergency vehicles to make entrance into Merriam Mountains if the ingress/egress routes are congested with vehicles leaving the site. Each of the roads is bordered by FMZs designed to prevent flame impingement on any passing vehicles in the event of fire on both sides of the roadways. Typical fuel treatment along roadways is 10 ft, according to the UFC Appendix II-A. Based on the FPP prepared for this project, a minimum of 100 ft of fuel reduction on both sides of the three permanent ingress/egress roadways, and additional treated area throughout the southern portion of the project open space, further reducing the likelihood that wildfire would affect residents. Based on the reduction of wildland fuels, the primary impact to residents during a fire will likely be smoke and reduced air quality. Depending on the location and direction of a wildfire, residents can avoid it by using one of several available alternate roadways.

a. Fuel Management Zones

An important component of a fire protection system is the FMZ. FMZs are designed to gradually reduce fire intensity and flame lengths from advancing fire by strategically placing thinning zones, restricted vegetation zones, and irrigated zones adjacent to each other on the periphery of the community's WUI-exposed structures, as well as in open space areas within the community, as appropriate. The FPPs (Appendix K to the Merriam Mountains Specific Plan Draft EIR, dated August 2007) discuss the FMZs for the Merriam Mountains project in great detail. The significance of the Merriam Project's FMZs cannot be understated. Based on scientifically modeled fire behavior calculations customized for the Merriam site, flame lengths under the most extreme fire weather conditions within the WUI areas would approach 110 ft. The fire behavior computer modeling system used to predict flame length was not intended for determining sufficient FMZ widths, but it does provide the average predicted length of the flames, which is a key element for determining "defensible space" distances for minimizing structure ignition. One would expect that the tips of the flaming front would extend 110 ft in front of "involved" vegetation. Therefore, an appropriate fuel model would likely be approximately 150 ft wide, providing enough set-back from volatile fuels that heat and direct flame impingement is minimized or eliminated, providing firefighters defensible space in which

they can work. For this project, the FMZs are more than twice the modeled flame lengths in each of the fuel types represented on site (refer to Figure 1.1-23a and 1.1-23b). This results in fuel treatment areas that are 225 ft in areas with 110 ft flame lengths and up to several hundred feet in internal areas where ingress/egress roads are adjacent WUI.

b. Fire Behavior Post-FMZ Treatment

The BeHave fire behavior model that was used computes fire behavior based on average wind speed. Therefore, the flame height predicted in the model is based on the highest gusts, which is based on protecting structure from a worst-case fire event. The rate of spread used in the fire modeling assumes a maximum continued wind strength of 60 mph, which overstates the sustained wind that is typically used to determine the rate of spread. Based on the BeHave fire behavior model, the fire intensity and flame lengths in untreated Biological Open Space areas vary up to nearly 110 ft in height and 30 mph spread rates. Conversely, the FMZ areas experience a significant reduction in flame length, intensity, and spread rate. The 110 ft flames predicted during pre-treatment modeling are reduced to under 12 ft at the outer edges of the FMZ and to less than 4 1/2 ft by the time the inner portions of the FMZ are reached and spread rates slow to single digit mph speeds.

As discussed above, the proposed project is located in an area subject to periodic wildfires, and because there have been no wildfires in recent history and the fuel load is heavy, the potential for wildfire hazard is high. The proposed Merriam Mountains project will reduce the potential for risk of loss, injury, or death involving wildland fires through such features as installation of ignition-resistant residences, fire-resistant landscaping, and associated hardscapes. In addition, fuel loading will be reduced through strategically located FTZs. The proposed project has incorporated several components to reduce the potential for wildland fires; however, the construction of a residential development in this project area would result in a significant impact from the exposure of people to wildland fires (Impact HZ-1).

c. Emergency Evacuation

Emergency access to the project site will be provided via four egress locations: Lawrence Welk Court, an undivided 32 ft wide egress route with an undivided width on a 40 ft graded right-of-way out of the north end of the project. This roadway could provide two lanes of egress in the event of an evacuation because the fire authorities could direct use of both lanes for egress.; Merriam Mountains Parkway; provides egress to the south, which includes an undivided 36 ft wide curb-to-curb road with two 12 ft wide travel lanes (one in each direction) with a 12 ft wide painted median that will be used as an additional south-bound lane for egress from Neighborhoods 3, 4, and 5 should it be required. This 36 ft wide road starts at the intersection of Lawrence Welk Court and goes to the south end of Neighborhood 3. From the south end of

Neighborhood 3 to the intersection with Deer Springs Road, there are four 12 ft wide travel lanes. The last 800 ft of Merriam Mountains Parkway will be divided by a crossable median with two 12 ft wide travel lanes on each side of the median. Meadow Park Lane, includes four 12 ft wide travel lanes from the intersection of Merriam Mountains Parkway to Deer Springs Road the section of the road will be divided by a median with two 12 ft wide travel lanes on each side of the median; and Camino Mayor will be constructed as a 32 ft undivided width on a 40 ft graded right-of-way along the western portion of the project site. The roadway will provide a secondary emergency route maintained out of the west side of the project via Camino Mayor to Twin Oaks Valley Road. All streets, driveways, parking areas, cul-de-sacs, and “hammerhead” turn-arounds will be in accordance with County of San Diego and Fire Districts’ Fire Codes to allow adequate emergency access and evacuation if required. In addition, all major arterial road systems within the Merriam project will include a “No Parking Fire Lane” to allow for emergency access in the case of a fire, in accordance with County of San Diego and Fire Districts’ Fire Codes. The number of available lanes and widths of these evacuation routes have been included in the project design to meet or exceed County of San Diego Fire and DSFPD standards. To provide additional safety, extensive fuel modification has been provided along the roadways to ensure safe passage of vehicles during evacuation.

In addition to roadways designed to permit safe and orderly evacuations from the project site, an extensive homeowner fire awareness education program is planned that will offer homeowners educational materials on how to care for and maintain the fire resistant features of their property and what to do before, during, and after a wildfire event. The Merriam Mountains Homeowners’ Association (HOA) will work with the Deer Springs Fire Safe Council (DSFSC) to establish a branch of the Fire Safe Council to actively promote fire preparedness within the Merriam community. The HOA will provide regularly scheduled educational seminars for homeowners of the project site regarding safe evacuation procedures. A community intranet site will also provide residents safe routes for evacuation that will factor in the direction of the approaching fire. The FPP identifies that all potential home buyers will receive and sign acknowledgements with their covenants, conditions, and restrictions (CC&Rs) making future residents aware that the project site is located in a high fire hazard area in the Wildland/Urban Interface. Therefore, the proposed project will be required to complete the following: provide disclosure that the project site is located in a high fire hazard area, which will be included in the CC&Rs; provide educational materials at the point of sale and on the Merriam Mountains Community website; and provide evidence that the Merriam Mountains HOA has joined the DSFSC prior to the recordation of the first map.

Evacuation planning within the County of San Diego is completed on a community-wide basis and is not development specific. The proposed project’s area does not yet have an evacuation plan (<http://www.co.san-diego.ca.us/oes>). The San Diego County Community

Protection/Evacuation Committee was established as a result of the firestorms of 2003. The Board of Supervisors directed the County of San Diego, through the Office of Emergency Services (OES), to ensure the creation of community protection and evacuation plans. OES is dedicated to assisting communities in San Diego County to develop their Local Plans. The project intends to work with the DSFSC and the applicable law enforcement agencies in the development of a community-wide Community Protection and Evacuation Plan.

Evacuations related to wildfires in the County of San Diego that occurred in October 2007 demonstrated orderly and efficient large-scale evacuations are possible when aided by reverse 911 systems during emergencies. During the October 2007 wildfires, both the City of San Diego and County of San Diego used reverse 911 systems to communicate to residents in the affected areas that fire threat was imminent and evacuation was necessary. On October 22, 2007, a day after the outbreak of the Witch Creek and Harris Fires, the County of San Diego noted as many as 200,000 reverse 911 calls had been placed to alert County of San Diego residents to evacuate their homes. Law enforcement officers also notified residents by driving through evacuation areas. SANDAG stated that 515,000 County residents received a voluntary or mandatory evacuation notice during the October 2007 fires, making it the largest fire evacuation operation in the nation's history (County of San Diego Countywide Fire Update 210). The proposed project is within the County of San Diego, and its residents would be contacted by the reverse 911 system in the event of a mandatory evacuation.

In summary, sShould public safety officials determine that a temporary relocation of the residents is required, there are enhanced tools available to significantly reduce the occurrence of panic in the event of a wildland fire. Homeowner disclosures at the point of sale, Homeowners AssociationHOA and community-based public education programs, and collaboration between the Merriam Mountains HOA and the DSFSC, ~~creation of a Merriam Mountains Fire Safe Council~~ will provide a level of awareness to residents. In addition, early notification using the County of San Diego's reverse 911 telephone system coupled with the planned roadway system for egress serves to eliminate or greatly reduce the level of anxiety experienced during an emergency.

3.3.1.4 Cumulative Impact Analysis

As discussed above, the project area is susceptible to wildland fires. The potential for wildland fires resulting in the loss of life or property are generally unique to each site. Proposed projects under review are subject to the fire codes and regulations and the preparation of FPPs to determine the potential risk for wildland fires. Proposed projects will be required to include such features as FTZs, fire access roads, and fire hydrants to reduce the risk of potential wildland fires. A proposed project in a given area cannot be approved unless the project is determined to

meet the fire codes and regulations for the fire authority having jurisdiction over the proposed project.

However, the proposed project along with cumulative projects would result in an increased population in wildland interface and urbanized areas, thereby potentially increasing the risk of wildland fires through factors such as human carelessness, arson, and vehicle fires. While increasing the wildland interface, the project also increases the urbanized area in which its FPP will utilize the best available technologies for fire protection have been included in the project design and further demonstrates the rate of spread of fire would be reduced enough for adequate response by the fire authority having jurisdiction. Through the proposed project's and cumulative projects' compliance with the numerous fire-related regulations and incorporation of fire protection features, the ~~cumulative wildland fire impact will reduce~~ potential cumulative impacts from wildland fires will be reduced to less than significant.

There would be a substantial increase in traffic on surrounding roads that may cumulatively affect emergency response and evacuation. ~~In addition,~~ However, the proposed project ~~results in~~ would result in increased revenue for the agencies responsible for ~~the~~ responding. Taken together, ~~these,~~ both project features included in the FPP and the payment of fees would ensure that cumulative fire-related impacts will be less than significant.

3.3.1.5 Growth-Inducing Impacts

Growth potentially generated by the proposed project was evaluated in Appendix S to the Merriam Mountains Specific Plan Draft EIR, dated August 2007 ~~of this EIR~~. The project site and its surrounding area are located within a wildland area. It should be noted that the project proposes to implement fire protection measures that would not only mitigate for potential wildfire impacts on site but would be beneficial to the surrounding community. These measures include, but are not limited to, the additional FTZ areas that would surround all proposed development and be located within all other open space areas within the Merriam site. This would result in a large break in the vegetation that is now capable of carrying a wildfire over the mountain under a worst-case Santa Ana wind into the San Marcos, Elfin Forest, and Rancho Santa Fe areas as it burns its way towards the coastline. The design of the project will result in a lessening of the fire danger in the Merriam Mountains as well as significantly reducing the risk to downwind communities. Potential growth generated by the proposed project would result in a greater urbanized area, therefore reducing the amount of wildland areas and the potential threat from wildland fires. In addition, future projects would be able to use the improved infrastructure built by the project (e.g., Deer Springs Road). Impacts would be less than significant.

Summary of Impacts

HZ-1 Exposure of people to a significant risk of loss, injury, or death from wildland fires.

3.3.1.6 Mitigation Measures

The following mitigation measure shall be incorporated to reduce hazardous impacts associated with wildland fires:

M-HZ-1a All features of the Merriam Mountains Fire Protection Plan and San Marcos Fire Protection Plans (Appendix K to the Merriam Mountains Specific Plan Draft EIR, dated August 2007) shall be implemented in conjunction with development of individual neighborhoods within the Specific Plan area.

M-HZ-1b The following list highlights important project fire protection features for the Merriam Mountains community. The fire protection features are aimed at mitigating the risk of vegetation fire ignition of structures and, conversely, structural fire ignition of vegetation. Some of these features are requirements by current codes, whereas others are recommendations that are the direct result of the FPP analysis and risk rating process.

- Hydrant spacing shall meet DSFPD, SMFPD, County of San Diego, Vallecitos Water District and Rainbow Water District requirements. All water storage and hydrant locations, mains, and water pressures shall comply with the San Diego County Fire Code Fire Flow Requirements and the Fire Flow Requirements of the DSFPD Ordinance 2002-01.
- Public water systems shall be consistent with wildland interface area requirements. Water supply must meet a 2-hour fire flow requirement of 2,500 gallons per minute (gpm) with 20-pounds per square inch (psi) residential pressure, which must be over and above the daily maximum water requirements.
- Access roads shall meet or exceed requirements of San Diego County.
- Fire fighters shall have access to backyard areas via designated access ways from streets.
- An equestrian trail shall permit firefighter and FMZ maintenance personnel access.
- Ongoing road, access components (e.g., gates and, signs, etc.), and FMZ maintenance shall be performed in perpetuity.

M-HZ-1c Basic and enhanced construction features are required due to the project's WUI location and location in a high fire hazard severity zone. As such, in addition to applicable County of San Diego Building Code requirements, enhanced requirements shall be implemented on this project:

- **Roofing.** Roofs shall have a Class A fire rated concrete or clay tile roof assembly system that meets FAHJ approval.
- **Exterior walls.** Exterior walls shall comply with the provisions of the UBC, Chapter 7a and the California Fire Code (CFC). Such material shall extend from the top of the foundation to the underside of the roof sheathing. Wood shingle and shake wall covering shall be prohibited. No wood shall be allowed on exterior walls except solid core entry doors, door jambs and window frames. Walls shall be designed to resist intrusion of flame and embers.
- **Architectural.** Aesthetic enhancements shall be of ignition-resistant or fire retardant materials, such as non-combustible foam with stucco covering and wrought iron materials.
- **Eaves Protection.** Eaves and soffits shall be boxed in. Eaves and fascias, where required, shall be protected on the exposed underside by ignition-resistant materials, or comply with California State Fire Marshal Standard 12-7-A-3.
- **Venting.** No attic ventilation openings or ventilation louvers shall be permitted in soffits, in eave overhangs, between rafters at eaves, or in other overhanging areas. Design, location, size, and quantity of vents shall be to the approval of the FAHJ.
- **Glazing.** Glass or other transparent, translucent, or opaque glazing shall be dual pane as approved by the FAHJ.
- **Skylights.** Shall be constructed of tempered glass unless FAHJ approves other material (in the presence of an automatic fire sprinkler system).
- **Insulation.** Paper-faced insulation shall be prohibited in attics or ventilated spaces.
- **Gutters and downspouts.** Gutters and downspouts shall be constructed of noncombustible material. Gutters shall be provided with the means to reduce the accumulation of leaf litter and debris that contributes to roof edge ignition.
- **Appendages and projections.** Components attached to any structure shall not increase the risk of fire spread to the structure. Where fences attached to or immediately adjacent to structures face the wildland fuels, the first 5 feet of such

fencing, which connects to the structure, shall be constructed of non combustible, heavy timber or fire retardant pressure treated wood or material.

- **Spark Arrestors.** All chimneys and other vents on heating appliances using solid or liquid fuels shall have spark arrestors of a type approved by the FAHJ and as specified in the CFC.
- **Exterior doors.** Exterior doors shall be approved noncombustible construction, solid core wood not less than 1 3/4 inches thick or have a fire protection rating of not less than 20 minutes. Garage doors shall be non combustible or exterior fire retardant wood. Windows within doors and glazed doors shall be in accordance with the CBC.
- **Detached accessory structures.** Detached accessory structures located less than 50 feet from a building containing habitable space shall have exterior walls constructed with ignition-resistant or fire retardant materials.
- **Restricted access.** Where emergency vehicle access is restricted because of secured access roads or driveways or where immediate access is necessary for life-saving or fire-fighting purposes, the FAHJ is authorized to require a KNOX lock system.
- **Addressing.** All residential buildings shall have a permanently posted address which shall be legible from the street. If it is not legible from the street, an address shall also be posted at the street entrance to the driveway and shall be visible from both directions of travel. The address on the structure shall be internally illuminated in times of darkness. Letters/numbers shall be 4 inches high with 3/8-inch stroke and placed at eight feet above grade.
- **Top of slope non-combustible walls.** A six-foot tall non-combustible wall shall be constructed pursuant to the Fire Protection Plan.

Automatic fire sprinkler systems. All structures having a footprint greater than 200 sq ft shall be protected by an automatic fire sprinkler system. Such systems shall be designed and installed in conformance with the standards articulated in NFPA 13, 13D, or 13R, as appropriate.

Fuel Treatment Zones. FTZs shall be provided according to the Fire Protection Plan:

- Fire resistant plant palette from the San Diego County recommended plant list in FMZs 1 and 2A.
- Irrigation in Zones 1 and 2A

- Thinning and removal of highly flammable native plants from Zone 2B along with maintenance of retained plants at heights of 18 inches, with exceptions for trees and tree-like shrubs
- Roadside FMZs ten times the DSFPD standard width; 100 feet on either side of roads.

3.3.2 Hazardous Materials and Hazardous Material Sites

This section has been prepared based on five separate Phase I Environmental Site Assessment (ESA) reports that were prepared for the Merriam Mountains site. These reports were prepared by Leighton Consulting, Inc. in November and December of 2003 and August 2005 and are included as Appendix I to the Merriam Mountains Specific Plan Draft EIR, dated August 2007 of this EIR. The scope of the Phase I ESAs included a reconnaissance-level visit, record review, and interviews. In addition to the Phase I reports prepared for the project, a Limited Soil Sampling Report was prepared for the Spent Shotgun Shell Area in North Western Area of Merriam Mountains Development Site by Leighton Consulting, Inc. on September 21, 2006 and was used in preparation of this section and is also included as Appendix I to the Merriam Mountains Specific Plan Draft EIR, dated August 2007 to this EIR. A Preliminary Geotechnical Investigation Report of the project site was prepared in November 2006 by Leighton Consulting and Associates, Inc. and was also used in preparation of this section. The geotechnical report is included as Appendix J to this EIR.

3.3.2.1 Discussion of Existing Conditions Relating to Hazards and Hazardous Materials

Historically, as shown by aerial photographs from 1928 to the present, the site and the surrounding property was undeveloped. Land use changes in past years have consisted of a few new residential properties and orchards in the project vicinity.

A radon survey was conducted by the State of California in 1990. Of the 162 samples obtained from residential homes in Region 9, which includes San Diego County, the arithmetic mean radon levels were 0.6 picoCuries per liter of air. Because this average is below the U.S. Environmental Protection Agency (EPA) radon action level (4 picoCuries per liter of air), the potential for elevated radon levels at the site is considered low.

Five Phase 1 ESAs were prepared for the proposed project. A Phase 1 report identifies recognized environmental conditions (RECs) in connection with a proposed property; this includes potential RECs on the property site and those within a 1 mi. radius of the subject property, which are identified from a regulatory database list. The regulatory database list was generated by the Environmental FirstSearch environmental database report system (which identifies sites that are included on a number of governmental database lists). The identified

issues on this site consist of the following RECs: contamination from lead shot, potential pesticides, lead-based paint, and asbestos. In addition, a number of off-site listings were identified; however, none of them were reported to present a potential source of migration of hazardous substances to soils or groundwater beneath the site. The results of the Phase 1 Reports prepared for the proposed project are summarized below and are provided in Appendix I to the Merriam Mountains Specific Plan Draft EIR, dated August 2007 to this EIR. On-site conditions are discussed separately from off-site conditions under the respective subheading.

On Site

a. Phase I Environmental Site Assessment Report Merriam Property; December 3, 2003 and Limited Soil Sampling results

The Phase I ESA for the Merriam property found no storage or containers of hazardous or regulated substances; no visual evidence of Polychlorinated Biphenyls, pesticides, stained or discolored soils, stressed vegetation, unusual odors, on-site wells, asbestos, or lead-based paint. However, the Phase 1 report identified the presence of lead shot in the area of the spent shotgun shells northeast of the abandoned private airstrip as a REC. Approximately 100 spent shotgun shell casings were observed in this area. A Limited Soil Sampling investigation was completed for the spent shotgun shell area in the northwestern area of the site and included the analysis of four soil samples, as shown below:

Sample No.	Total Lead (mg/kg)	STLC (mg/L)	TCLP (mg/L)
S-1	2,740	374	211
S-2	558	52.4	163
S-3	240	230	80.4
S-4	764	620	14.1

NOTE: **STLC** = Soluble Threshold Limit Concentration; **TCLP** = Toxicity Characteristic Leaching Procedure.

Since the total lead concentrations were greater than 100 mg/kg, the samples were also tested for soluble lead by the State of California wet extraction method (STLC) and RCRA wet extraction method (TCLP). The State of California's hazardous waste standard for total lead consists of 1,000 mg/kg and 5 mg/L for soluble lead. The RCRA hazardous waste standard for lead consists of 5 mg/L. As shown in the above table, the lead amounts indicated in the soil samples exceed these standards.

b. Phase I Environmental Site Assessment Report Kim Property; November 18, 2003

A separate ESA was performed for the 5.24 ac. Kim property located at 628 Deer Springs Road, the southernmost portion of the project site. The Kim property has a greenhouse operation that was built in 1969 and has been under the Kim's ownership since 1996. Ms. Kim stated that a

septic system exists on site. She was not aware of storage of any hazardous materials or environmental concerns associated with the site. According to Ms. Kim, the propane aboveground storage tank (AST) on site is not in use and is planned for removal. Although no pesticides were observed, she also stated that pesticides are used on site. The FirstSearch database for the Kim property did not identify any facilities on or adjacent to the property that appear to represent a potentially hazardous source. There is no evidence or suspicion of surface release(s) of petroleum products or chemicals. During the site inspection, there were no observations of stressed vegetation, disposals, ground settlement, or similar conditions. Neither an asbestos survey nor a lead paint survey was performed. Due to the age of the structures, these hazards are expected to exist on site. The Phase I report recommends the following: an asbestos survey and lead-based paint survey prior to demolition of on-site structures; collection and analysis of four surface (0–0.5 ft) soil samples within the greenhouse and an additional four samples on the remainder of the site for the presence of organochlorine pesticides; removal of AST, septic system, and associated piping according to current regulations; and ongoing observation during site development to identify areas of possible contamination from underground facilities, buried debris, waste, drums, tanks, staining soil, or odorous soils.

c. Phase I Environmental Site Assessment Report Jimenez Property; November 24, 2003

A separate ESA was performed for the approximate 31 ac. Jimenez property located east of Twin Oaks Crest Drive and west of Gist Road northwest of the City of Escondido and northeast of the City of San Marcos. The Jimenez property is within the project boundary. The site is completely undeveloped, consisting of natural terrain and rolling hills. The FirstSearch database did not identify any facilities on or adjacent to the property that appear to represent a potentially hazardous source. The ESA found no evidence or suspicion of surface release(s) of petroleum products or chemicals onto the land, nor stressed vegetation, disposals, ground settlement, or other similar conditions. The Phase I report recommended observation during site development to identify areas of possible contamination such as the presence of underground facilities, buried debris, waste drums, tanks, stained soils, or odorous soils.

d. Phase I Environmental Site Assessment Report Clark Property; November 21, 2003

A separate ESA was performed for the 5.24 ac. Clark property located at 2646 Deer Springs Place in San Marcos. The Clark property is within the project boundary. The site is developed with a residence, corral, and a barn. During an interview, the former property owner stated that a septic system exists on site. The residence uses propane for heating, which typically indicates the presence of an AST. The FirstSearch database did not identify any facilities on or adjacent to the property that appear to represent a potentially hazardous source. Leighton Consulting, Inc. observed no evidence or suspicion of release(s) of petroleum products or chemicals onto the land

surface. In addition, there were no signs of stressed vegetation, disposals, ground settlement or other similar conditions. Neither an asbestos survey nor a lead-based paint survey was performed. Due to the age of the structures, these hazards are expected to exist on site. The Phase I report recommended the following: an asbestos survey and lead-based paint survey prior to demolition of on-site structures; removal of the aboveground propane storage tank, septic system, and associated piping according to current regulations; and ongoing observation during site development to identify areas of possible contamination from underground facilities, buried debris, waste drums, tanks, and stained soil or odorous soils.

e. Phase I Environmental Site Assessment Report, 630 Deer Springs Road; August 17, 2005

A separate ESA was performed for the 7.5 ac. Smith property located at 630 Deer Springs Road in San Marcos. The Smith property is within the project boundary. The purpose of the ESA was to identify environmental conditions of concern. The site currently consists of one single-family residence and structures to board horses, including a storage shed, stables, and corrals. The property has been under Smith ownership since May 1999. Cathleen Smith, the current property owner, indicated that a septic system is located off the southeast corner of the residence. The ESA concluded that there is no evidence or suspicion of surface release(s) of petroleum products or chemicals onto the land, nor signs of stressed vegetation, disposals, ground settlement, or other similar conditions except for the presence of a former orchard. Pesticides are generally known to have been used at orchards from 1968 to 2002, when an orchard existed on the project site. Neither an asbestos survey nor a lead-based paint survey was performed. Due to the age of the structures, these hazards are expected to exist on site.

The Phase I ESA recommends the following: preparation of a soil management plan to establish procedures for the notification, monitoring, assessment, sampling, and testing of impacted soil and/or groundwater, and the storage and proper disposal of contaminated materials that may be encountered during the excavation and grading phase of site redevelopment; collection of surface and near-surface soil samples and testing for organochlorine pesticides to determine absence or presence in the soil; completion of an asbestos survey and lead-based paint survey prior to demolition of on-site structures; and ongoing observation during site development to identify areas of possible contamination from underground facilities, buried debris, waste drums, tanks, and stained soil or odorous soils.

Off Site

Currently, properties adjacent to the site maintain mixed land uses. I-15 borders the project site to the east; ranching, farming, residential, commercial plant nursery, cucumber nursery, health spa facilities and undeveloped properties are located to the west and south; and residential, farming, and undeveloped property remains to the north of the site.

a. *Phase I Environmental Site Assessment Report Merriam Property; December 3, 2003*

The Environmental FirstSearch environmental database report system was consulted for areas adjacent to the site. This report identified several sites located within 0.5 mi. of the subject property. According to the Phase I reports, none of these facilities appear to be a potential source of migration of hazardous substances to soil or groundwater beneath the site.

The Federal Resource Conservation Recovery Act (RCRA)-regulated hazardous waste generator notifiers' list was reviewed to identify RCRA generator facilities on site. The database search did not identify any RCRA treatment, storage, or disposal sites or RCRA sites undergoing "a corrective action" within a 0.5 mi. radius of the site. One small quantity generator was identified west of the site.

- The San Diego County Water Authority Schetne House, located at 3586 North Twin Oaks Valley Road, generates 100 to 1,000 kg per month of hazardous waste.

The Solid Waste Landfill (SWL) Facilities database consists of open, as well as closed and inactive solid waste disposal facilities and transfer stations. The SWL database identified one SWL site within 0.5 mi. of the site:

- Robert Weese Filtration Plant, located approximately 1,875 ft to the north of the site at 3885 Silverleaf Lane, was listed in the permit, underground storage tank (UST), and SWL databases. The facility was listed in the Permit database as recycling small quantities of waste oil and storing hazardous materials. Four inspection violations were reported during 1999 and 2000. The SWL database listed the primary and secondary waste types as inert contaminated soil and filter backwash brine waters, respectively. The UST database lists the former diesel UST as "closed by removal."

The UST inventory found several USTs adjacent to the Merriam property:

- Multiple USTs at Arco Facility No. 5625 at 26915 Mesa Rock Road near the southeast corner of the site
- UST located at Champagne Texaco east of I-15
- The Robert Weese Water Filtration Plant previously described above.

Leaking underground storage tank (LUST) sites within a 0.5 mi. radius of the site include the following:

- Champagne Texaco, Chevron #9-1197 at 8808 Lawrence Welk Drive, approximately 0.2 mi. east of the site, was reported as case closed in 1991.

- Pipeline Constructors at 26845 Mountain Meadow Road, approximately 0.3 mi. northeast of the site, had a reported diesel release and the case was closed in 1993.
- Circle R Ranch/ Circle R Ranch Trading Post at 8751 Old Castle Road, approximately 0.41 mi. northeast of the site, had a reported unleaded gasoline release in 1993 and the case was closed in 1996.

The following three listings are of facilities identified from the FirstSearch report as being located within the project site; however, when their addresses were mapped it was determined that these listings are located outside of the proposed site:

- The Robert Weese Filtration Plant, as previously discussed under the SWL facility listings.
- The Twin Oaks Chlorine Station, located approximately 2,625 ft west of the site at 3896 El Paso Alto Road, is listed in the Permits database. This listing was generated because the handler of hazardous waste material has not obtained a valid San Diego County Health Permit. No spills or potential hazardous concerns were reported.
- The North Twin Oaks Chlorine Station at 3690 North Twin Oaks Valley Road, approximately 1,875 ft to the west of the project site, is listed in the Permits database. This permit site was listed due to the lack of availability of records identifying initial and annual refresher training for personnel. No spills or potential hazardous concerns were reported.

No sites outside the project site were listed under the following databases: National Priority List (NPL), Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), Federal RCRA List of current sites or those undergoing “a corrective action,” Emergency Response Notification System, Department of Toxic Substances Control (CALSITES). Several unmapped sites were reported; however, these sites were determined to not have potential to adversely affect the subject property.

The FirstSearch report did not identify any facilities that appear to represent a potential source of migration of hazardous substances to soil or groundwater beneath the site.

b. Phase I Environmental Assessment Report Kim Property; November 18, 2003

The FirstSearch Report prepared for this property reviewed local, state, and federal listings for properties within the site vicinity. The FirstSearch report did not identify any facilities that appear to represent a potential source of migration of hazardous substances to soil or groundwater beneath the site.

c. Phase I Environmental Site Assessment Report Jimenez Property; November 24, 2003

The FirstSearch Report prepared for this property reviewed local, state, and federal listings for properties within the site vicinity. The FirstSearch report did not identify any facilities that appear to represent a potential source of migration of hazardous substances to soil or groundwater beneath the site.

d. Phase I Environmental Site Assessment Report Clark Property; November 21, 2003

The FirstSearch Report prepared for this property reviewed local, state, and federal listings for properties within the site vicinity. The FirstSearch report did not identify any facilities that appear to represent a potential source of migration of hazardous substances to soil or groundwater beneath the site.

e. Phase I Environmental Site Assessment Report, 630 Deer Springs Road; August 17, 2005

The FirstSearch Report prepared for this property reviewed local, state, and federal listings for properties within the site vicinity. The database search identified one SWL facility within 0.5 mi. of the site: Earthworm Recycling, located at 462 Deer Springs Road. No other information was reported in regards to this facility listing. In addition, one LUST facility was identified in the database search within 0.5 mi. of the Smith property: T.E.R.I. Incorporated, Center for Life Planning, located at 449 Deer Springs Road. This listing has an open soil case with the County of San Diego Department of Environmental Health. Since groundwater has not been impacted at this site and given the distance to the Smith property, potential negative impacts to the site are unlikely under current conditions. The FirstSearch report did not identify any other facilities that could provide a source of potential migration of hazardous substance to soil or groundwater beneath the site.

3.3.2.2 Guidelines for the Determination of Significance

A significant impact with respect to hazardous materials and/or hazardous waste would occur if the project would:

- 1) Cause substantial adverse effects on human beings either directly or indirectly
- 2) Expose people or the environment to significant hazards through the routine transport, use, or disposal of hazardous materials.

Guideline Sources

The identified significance thresholds are based on criteria provided in Appendix G of the State CEQA Guidelines, as well as applicable regulatory requirements identified in Appendix P. These

include the federal Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); Regional Water Quality Control Board (RWQCB) Waste Discharge/Water Quality Standards, Chapter 6.95; and Division 20 of the California Health and Safety Code (handling and storage of hazardous materials).

3.3.2.3 Analysis of Project Effects and Determination of Significance

Guideline 1: Cause substantial adverse effects on human beings either directly or indirectly

a. On Site

The following existing conditions on the site may result in the exposure of people or the environment to hazardous materials:

- Lead shot has been evaluated and determined to have impacted the soil in the area of spent shotgun shells northeast of the abandoned private airstrip. This hazardous material could be released into the environment and is considered a significant impact (Impact HZ-2).
- The closest proposed residential unit to this REC site would be located approximately 2,550 ft (0.48 mi.) to the south. This REC site is proposed to be located within the Biological Open Space area, which would be fenced to prevent access to this area from the proposed residents and/or other patrons. Other proposed development activities that would occur near this REC consists of grading activities for Lawrence Welk Drive. The distance from the edge of the proposed grading for Lawrence Welk Court is approximately 100 ft from the edge of the REC site. Although no grading activities would occur within this lead-contaminated area, it represents a potentially significant impact to the environment that requires mitigation to remove the existing contamination.
- Due to the presence of lead shot and potential presence of pesticides on site, the project would be required to participate in the County of San Diego's Voluntary Assistance Program (VAP) to obtain oversight of the remediation of these conditions. The VAP program uses the standards and requirements of the County of San Diego's Site Assessment and Mitigation Manual (SAM), which contains performance standards for site remediation.
- Due to the age of existing structures on the project site (located at the Kim, Clark, and Smith properties), asbestos is expected to be present. The potential presence of this hazardous material may result in the accidental release of asbestos into the environment if these structures are removed or disturbed. This would result in a significant impact (Impact HZ-3).

- Due to the age of existing structures on the project site (located at the Kim, Clark and Smith properties), lead-based paint is expected to be present. The potential presence of this hazardous material may result in the accidental release of lead-based paint into the environment if these structures are removed or disturbed. This would result in a significant impact (Impact HZ-4).
- Hazardous residue from pesticides may be present on the Kim and Smith properties from past agricultural operation. The potential presence of these hazardous materials could adversely affect future residents of this site through exposure and could result in the accidental release of organochlorine into the environment during the removal of structures or grading during construction. This would result in a significant impact (Impact HZ-5).
- Based on the Phase I investigations, it is possible that unknown contamination or buried hazardous materials could be encountered during site grading. The Phase I recommends the preparation of a soil management plan to establish procedures for the notification, monitoring, assessment, sampling, and testing of impacted soil and/or groundwater, and the storage and proper disposal of contaminated materials that may be encountered during the excavation and grading phase of site redevelopment.

b. Off Site

None of the Phase I reports identified any off-site facilities that appear to represent a potential source of migration of hazardous substances to soil or groundwater to the project site. Therefore, off-site impacts would be less than significant.

Guideline 2: Expose people or the environment to significant hazards through the routine transport, use, or disposal of hazardous materials.

a. On Site

Petroleum products, such as vehicle equipment fuel, may be transported and stored at the project site during construction, and chemicals, oil, paint, and solvents would be used during construction and operation of the proposed project. Herbicides may be used prior to grading and during operation of the project to clear and maintain vegetation and fertilizers may also be used to maintain vegetation and landscaping. All transport, handling, use, and disposal of substances such as petroleum products, solvents, and paints related to construction, operation, and maintenance of the proposed development would comply with all federal, state, and local laws regulating the management and use of hazardous materials. The adherence to statutory standards and practices of the proposed project components would reduce the risk of exposure of people or

the environment to significant hazards through the routine transport, use, or disposal of hazardous materials. Therefore, impacts would be less than significant.

No use of extremely hazardous materials such as gaseous chlorine or other chemicals is proposed. Propane storage tanks, septic systems, and any associated piping currently located on the Clark, Kim, and Smith properties, could result in a significant impact to the environment during site preparation activities (Impact HZ-6). However, it should be noted that the project would be required to comply with local and state regulations and adherence with these standards would reduce the risk of release of hazardous substances. For instance, the California Government Code (Section 65850.2) requires that no final certificate of occupancy or its substantial equivalent be issued unless there is verification that the owner or authorized agent has met, or is meeting, the applicable requirements of the Health and Safety Code, Division 20, Chapter 6.95, Article 2, Section 25500–25520.

No extraordinary risk of accidental explosion is anticipated with development and implementation of the proposed project. Therefore, impacts would be less than significant.

As discussed under Section 3.3.2.1—~~above~~, the site is not located within any listed hazardous materials sites. Therefore, no impact to listed hazardous materials sites would occur.

b. Off Site

Two chlorine stations were identified in the Phase I Environmental Site Assessment Report Merriam property; however, their listings were in regards to the handler of hazardous waste not obtaining a valid San Diego County Health Permit and lack of availability of initial and annual refresher training for personnel. No reports of any spills or potential hazardous concerns were listed. Since chlorine is considered a hazardous substance it should be noted that these sites are located, in an adjacent valley, approximately 1,875 and 2,625 ft west of the project site. Chlorine facilities are required to comply with applicable regulatory requirements that regulate extremely hazardous substances including the California Accidental Release and Prevention (CalARP) Program and associated Risk Management Plan requirements, which reduce the potential for these sites to present a significant hazard to the public or the environment.

3.3.2.4 Cumulative Impact Analysis

Projects in the vicinity of the proposed project considered for the analysis of cumulative hazards impacts are mapped on Figure 1.6-1 and listed in Section 1.6. From the list of cumulative projects, potential hazards and hazardous waste impacts that could occur in conjunction with cumulative projects located within the cumulative study area are found at the industrial (cumulative project number 15), farming/equestrian (cumulative project numbers 17 and 28),

medical health, mixed use (cumulative project numbers 21, 30, 48, and 63), and retail development (cumulative project number 14) ~~sites-projects were included as the study area for cumulative hazards impacts.~~ These projects were chosen because they have the greatest potential to contribute to a cumulative hazardous impact due to transportation and handling of hazardous materials that would occur upon project completion. Four projects were identified as resulting in hazardous impacts (cumulative project numbers 15, 28, 47, and 63) and three residential projects were identified as resulting in hazardous impacts (cumulative project numbers 49, 54, and 57).

Cumulative project number 15 resulted in potential impacts to emergency response and therefore is discussed under public services. Cumulative project numbers 28, 54, 57, and 63 have been identified as resulting in impacts associated with hazardous materials and/or hazardous waste. Cumulative project number 28 has the potential to cause traffic hazards due to proposed signage and to cause hazardous waste impacts from urine and manure from the animals at the proposed facility. Each of these projects has associated mitigation. For example, project number 28 mitigation measures include requiring all signs to be reviewed and approved by the city engineer, regular cleaning and maintenance of the corrals, as well as requiring that corral treatment control and BMPs be implemented to minimize manure accumulation on the project site to prevent flies and odor. Cumulative project numbers 54, 57, and 63 contain hazardous materials on site and would be remediated through proper removal and disposal through applicable local, state, and federal laws and a follow-up inspection prior to issuance of grading permits. In addition, these projects are located over 1.5 miles from the project site and each other, and therefore do not represent a potential source of migration of hazardous substance to soil or groundwater.

An additional sixty-three cumulative projects were identified during public review of the DEIR. A screening process was used to determine whether any of the sixty-two cumulative projects identified since release of the DEIR included industrial, farming/equestrian, medical health, mixed-use or retail developments within the cumulative study area. The screening process identified one industrial project (project number 93), one farming/equestrian project (project number 129), and six mixed-use projects (project numbers 75, 76, 78, 84, 85, and 87). These projects were included in the study area for cumulative hazard impacts.

This study area was chosen on account of these projects having the potential to contribute to cumulative hazard impacts due to the potential of transportation and handling of hazardous substances upon project completion. This is an appropriate cumulative study area for hazards because the typical hazards in the vicinity are site specific. It should be noted that the Phase I ESAs performed for the proposed project evaluated identified sites in the vicinity of the project that are listed on governmental databases for their potential or actual releases of hazardous substances to the environment and none of these sites were identified to present a potential source of migration of hazardous substances to soil or groundwater beneath the site. The radius

of the ESAs consisted of Highway 15 to the east, Deer Springs Road to the south, Twin Oaks Valley Road to the west, and Gopher Canyon Road to the north. The purpose of the ESAs was to identify (to the extent feasible pursuant to the processes prescribed in ASTM E1527-00) recognized environmental conditions (RECs) in connection with the proposed project site. Therefore, the ESAs not only analyze the effects of existing and potential impacts to the project site but look at hazards and hazardous materials within a 1-mile radius. This is an appropriate cumulative study area for hazards because the typical hazards in the vicinity are site specific.

Each ESA included an environmental database report prepared by FirstSearch Environmental. The results of the records searches and the site visits conducted by Leighton and Associates revealed no stained soils; evidence or suspicion of releases of petroleum products or chemicals onto the land surface; or signs of stressed vegetation, disposals, ground settlement, or other similar conditions. Where RECs are identified, remediation is required as a condition of development. For instance, the Merriam RECs consist of the presence of lead due to some spent shotgun shells northeast of the abandoned private airstrip, the potential presence of lead-based paint and asbestos due to the age of on-site structures, and the potential presence of pesticides in the southern portion of the site. These impacts would be mitigated by testing specific areas of the site for hazardous materials and remediating in accordance with local, state, and federal laws, if necessary. Off-site results identified areas of orchards to the south, west, and northwest of the site and sparse areas of single-family residences west and south of the site. The database reports did not identify any facilities that appear to represent a potential source of migration of a hazardous substance to the soil.

As noted in the analysis above, the project would not result in a significant impact from the transport of hazardous materials as the project would comply with federal, state, and local laws related to the transport and handling of hazardous materials. With each of the identified cumulative projects also complying with these laws, the cumulative impact related to the release of hazardous materials would be less than significant. Therefore, no cumulative hazardous materials and hazardous waste impacts would be expected and the project does not contribute to an existing cumulative situation.

~~Cumulative Impacts are also discussed in the Cumulative Technical Report provided as Appendix R of this EIR.~~

3.3.2.5 Growth Inducing Impacts

The Phase I reports prepared for the proposed project did not identify any existing hazardous concerns that could cause impacts to future growth surrounding the project site that would not be mitigated by the proposed project. The development of residential units, parks, and general commercial uses would not result in generating hazardous materials that are not permitted to be

located within residential neighborhoods. Any hazardous waste generated for the general commercial facilities would be required to comply with local, state, and federal laws in regards to proper handling and disposal. Therefore, hazardous impacts from potential growth inducement would be less than significant.

Summary of Impacts

The following hazardous materials and hazardous waste impacts have been identified.

- HZ-2 Impacts to the environment from lead-contaminated soils.
- HZ-3 Potential accidental release of asbestos into the environment.
- HZ-4 Potential accidental release of lead-based paint into the environment.
- HZ-5 Exposure of people to soils contaminated from pesticides (organochlorines) and accidental release of organochlorine into the environment.
- HZ-6 Release of contaminated materials from existing AST and septic systems located on site.
- HZ-7 The potential to encounter unknown site contamination (e.g., stained soils, buried debris) during site construction.

3.3.2.6 Mitigation Measures

Prior to issuance of grading permits, the applicant shall perform the following actions:

- M-HZ-2 To address contamination related to the area of lead shot and the areas of potential pesticide contamination on the Kim and Smith properties, the applicant shall enter into the County of San Diego Department of Environmental Health (DEH) VAP program for oversight of the site remediation. A Removal Action Plan shall be prepared for the DEH's review and approval to remove lead shot bullets (i.e., vacuum and/or removal of the upper few inches of soil) (see Appendix I to the Merriam Mountains Specific Plan Draft EIR, dated August 2007, for specific location) for off-site disposal at an approved facility. The Removal Action Plan will describe the methods for removal of lead shot bullets, which may include but not be limited to the removal through use of a vacuum and/or removal of the upper few inches of soil. To minimize impacts to special-status species, access to this area shall be provided via existing dirt access roads. The area for removal of the lead shot bullets is also recommended for revegetation (see Figure 3.2-3B),

- | which will not occur prior to the lead shot bullets being removed. This mitigation measure shall be implemented prior to issuance of a grading permit for the portion of Lawrence Welk Court through the contaminated area and prior to commencement of any revegetation activities in the contaminated area.
- M-HZ-3 Prior to issuance of a building or demolition permit, an asbestos survey shall be performed by an asbestos consultant or site surveillance technician as defined in Title 8, CCR, Article 2.6, Section 341.15 for all on-site structures that will be disturbed by demolition/renovation activities in accordance with local, state, and federal regulations. Should asbestos-containing materials or other hazardous building materials be encountered in the site structures, a licensed abatement contractor must remove these materials prior to commencement of demolition activities.
- M-HZ-4 Prior to issuance of a building or demolition permit, a lead-based paint survey shall be performed by a Certified Lead Inspector/Assessor as defined in Chapter 8, Division 1 of Title 17 of the CCR for all on-site structures that will be disturbed by demolition/renovation activities in accordance with local, state, and federal regulations. Should lead-containing surfaces or other hazardous building materials be encountered in the site structures, a licensed abatement contractor must remove these materials prior to commencement of demolition activities.
- M-HZ-5 Any septic systems and above ground storage tanks located onsite shall be removed and/or closed under permit and approval of the DEH prior to issuance of a grading permit.
- M-HZ-6 Prepare a soil management plan to establish procedures for the notification, monitoring, assessment, sampling, and testing of impacted soil and/or groundwater, and the storage and proper disposal of contaminated materials that may be encountered during the excavation and grading phase of site redevelopment. The Soil Management Plan shall be prepared and implemented as part of the project SWPPP.
- M-HZ-7 During grading or excavation work for the proposed project, the contractors shall observe the exposed soil for visual evidence of contamination. If visual indicators are observed during construction, the contractor shall stop work until the material is properly characterized and appropriate measures are taken to protect human health and the environment. The contractor shall comply with local, state, and federal requirements for sampling and testing, and subsequent removal, transport, and disposal of hazardous materials.

3.3.3 Conclusion

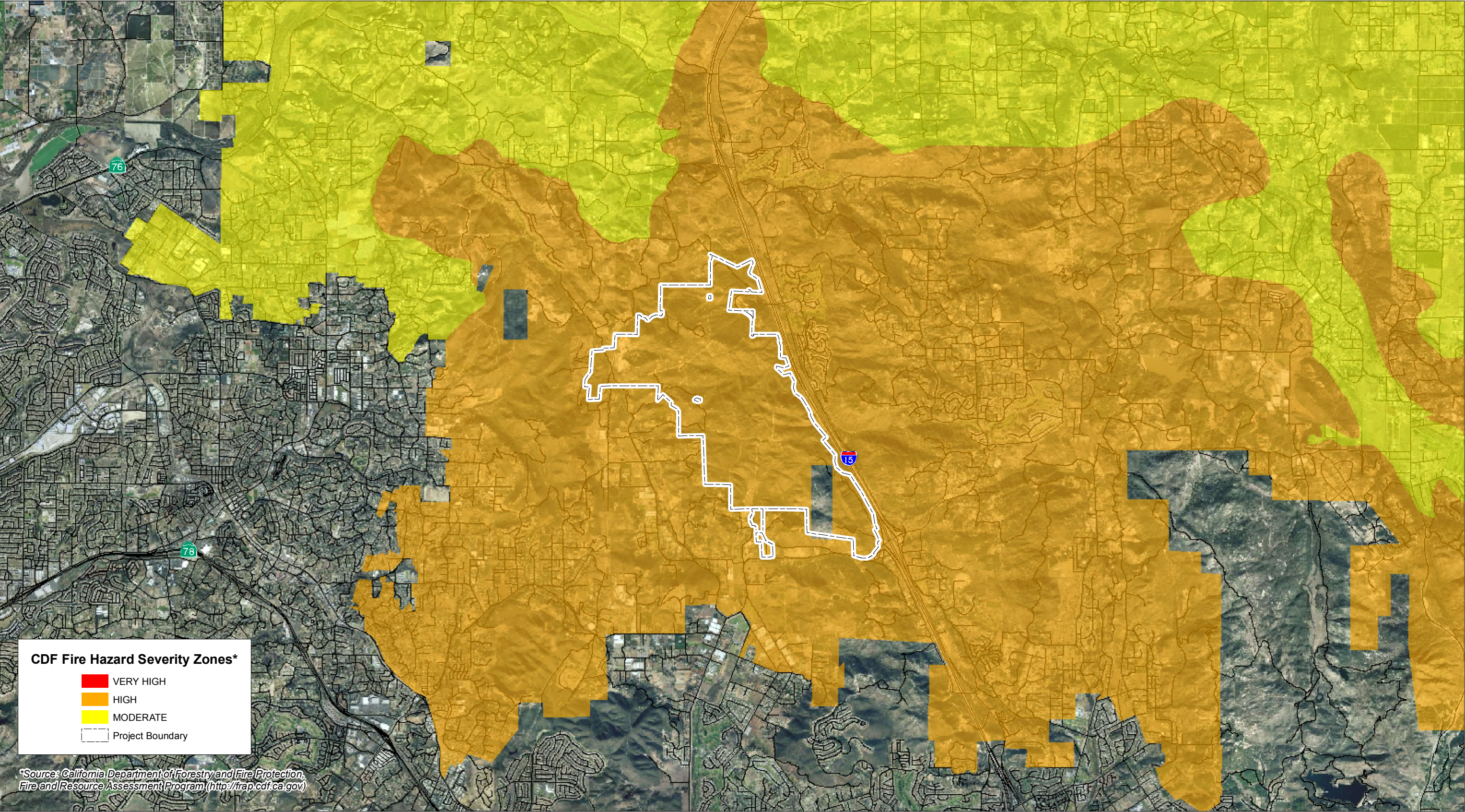
Wildfire Hazards

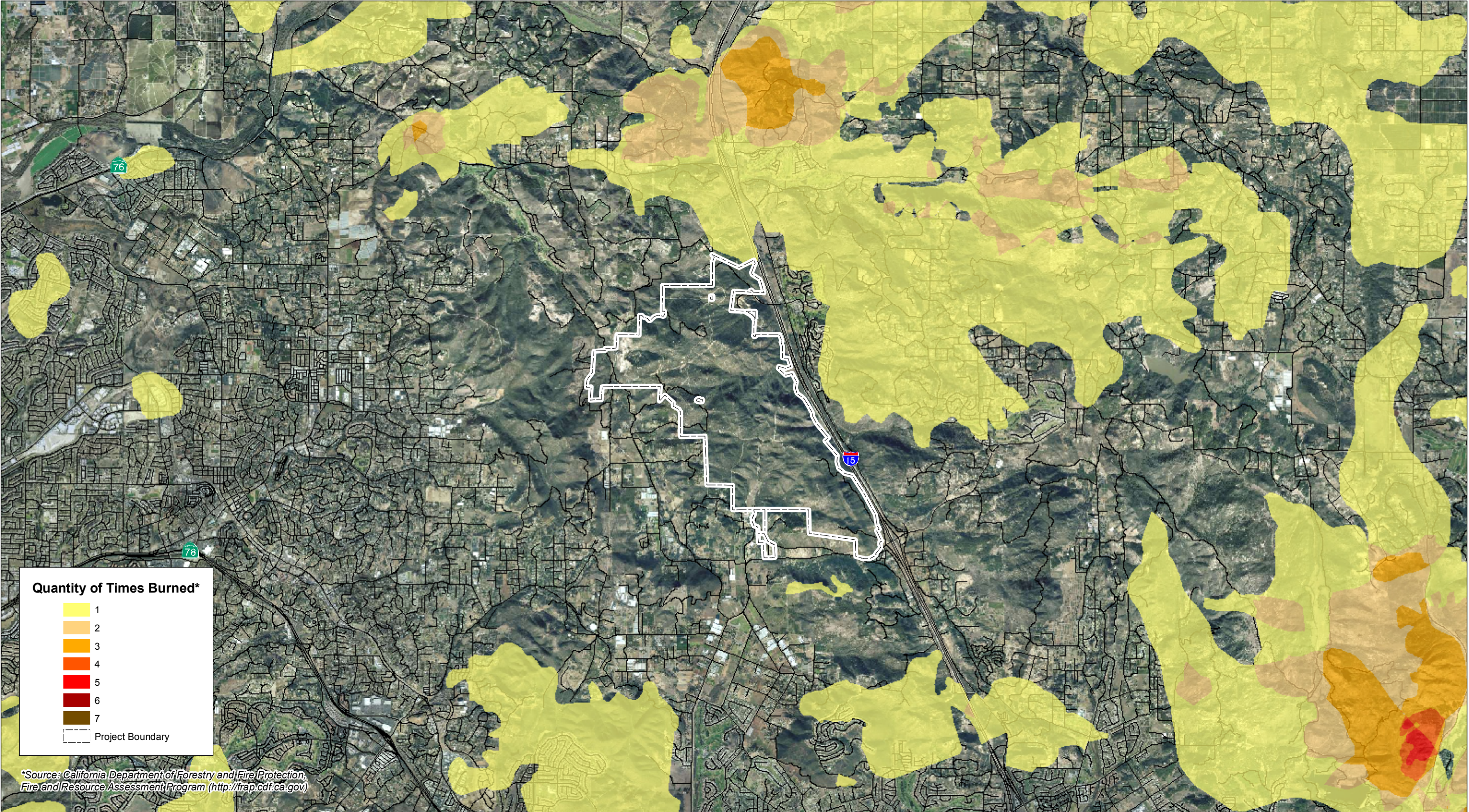
The requirements of the Merriam Mountains FPP would be implemented in conjunction with project development. Through implementation of mitigation measure M-HZ-1a (implementation of the Merriam Mountains FPP), along with the incorporation of the project fire protection features (M-HZ-1b) and the enhanced construction features (M-HZ-1c), impacts to people or the environment from wildfires (i.e., Impact HZ-1), would be reduced to less than significant. This is because these measures represent the best available technologies for fire protection and the rate of spread of fire would be reduced enough for adequate response by the FAHJ for the proposed project. The project would incorporate features such as firefighting emergency access routes and the installation of fire hydrants to provide enhanced fire protection services for the proposed project and the vicinity. In addition, cumulative emergency response would be mitigated by the project's traffic mitigation that would improve or contribute to traffic flows. The freeway mainline segments, while unmitigable, would allow emergency vehicles to pass on the paved shoulders.

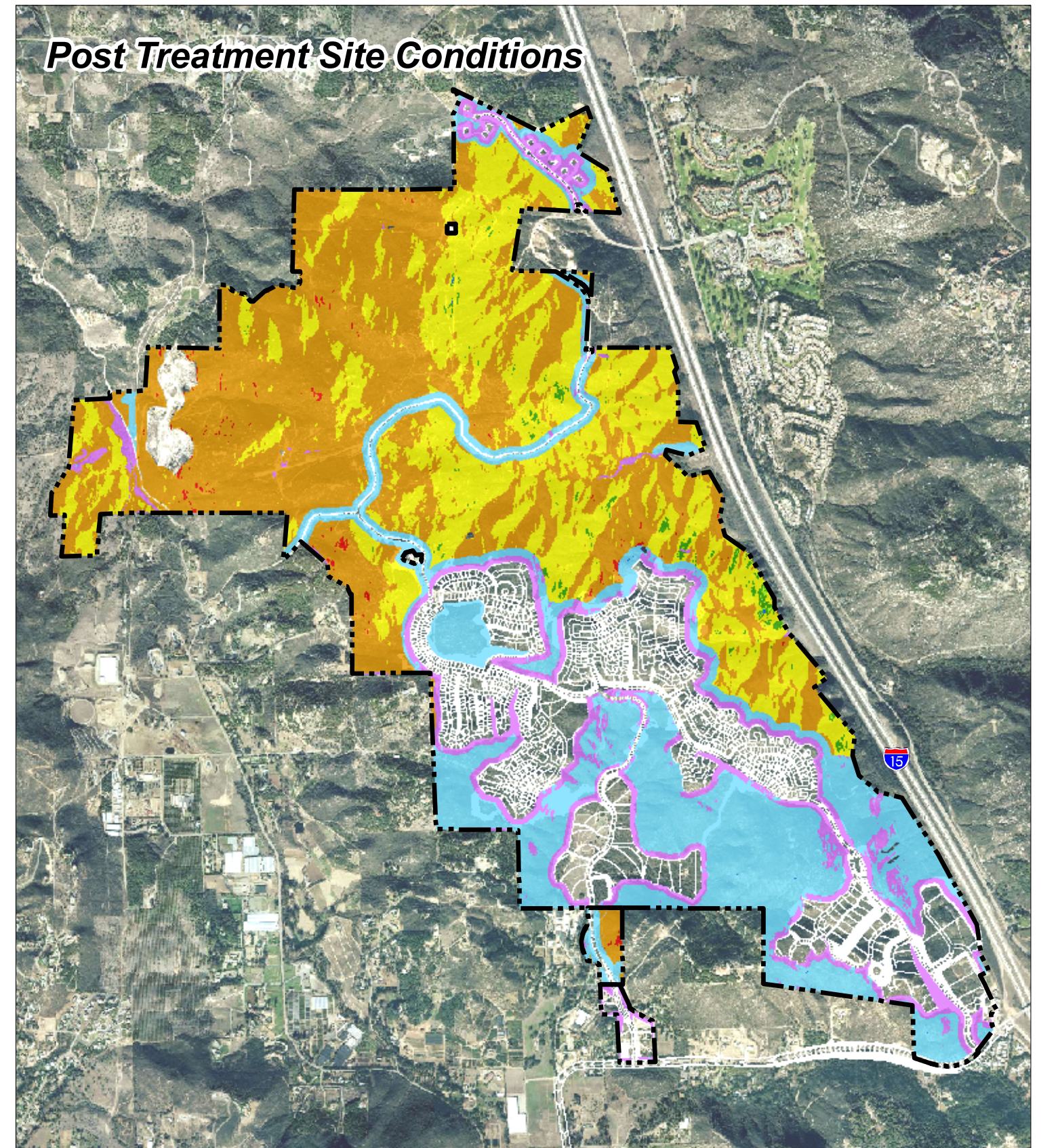
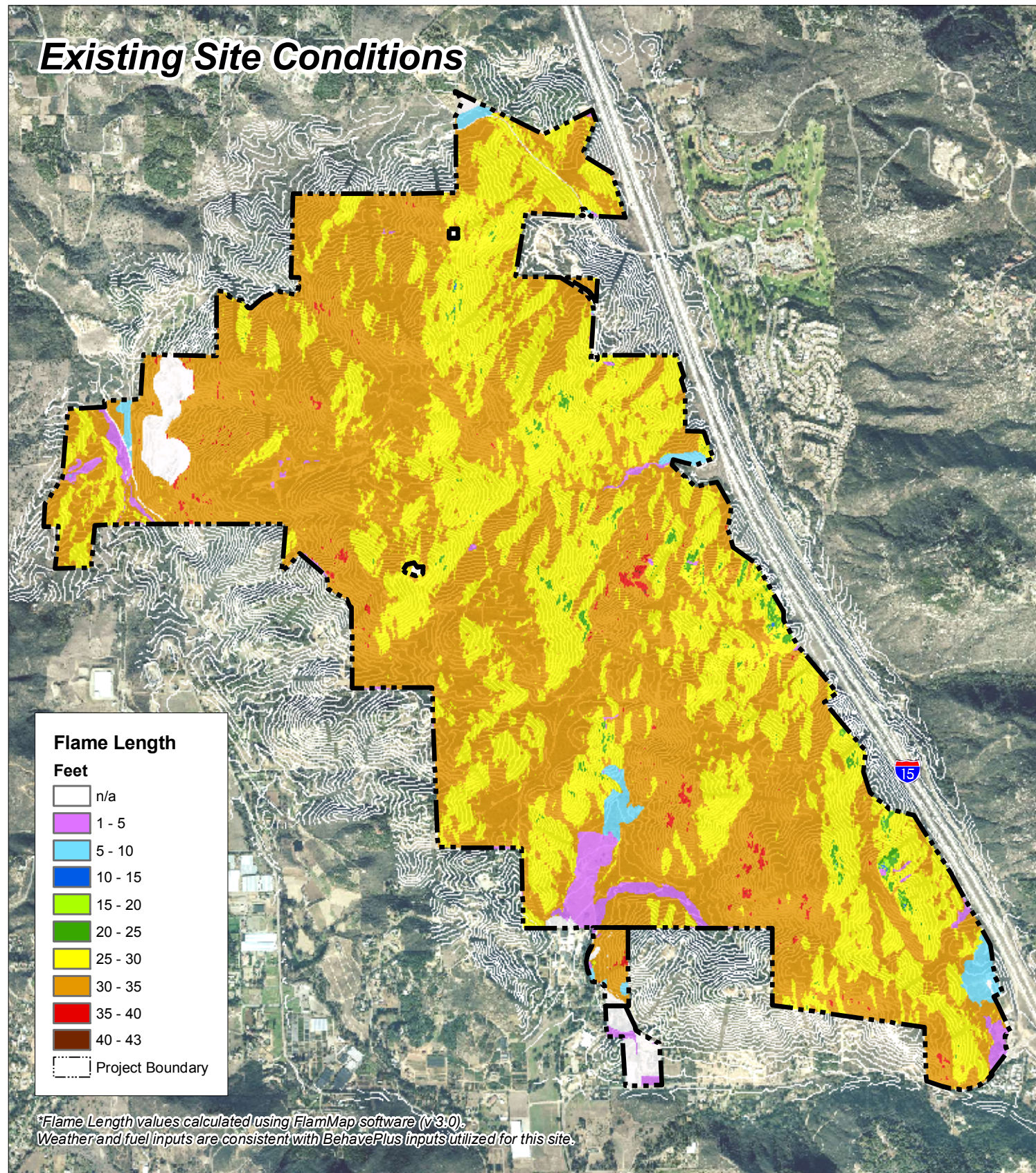
Hazardous Materials and Hazardous Material Sites

Implementation of the proposed project would result in potentially significant impacts as a result of hazardous materials. The above mitigation measures are required to mitigate the project's hazardous impacts. Implementation of the mitigation measures listed in Section 3.3.2.6 would reduce potential hazardous impacts to less than significant as discussed below.

Mitigation measure M-HZ-2 would reduce the potential impacts from existing lead contaminated soil (which may occur through vacuuming the lead and/or removing the upper few inches of soil) and from potential soil contamination from pesticides (Impacts HZ-2 and HZ-5) by removing and properly disposing of the source. Mitigation measure M-HZ-3 would reduce Impact HZ-3 to less than significant by properly testing and removing potential asbestos from existing structures on site. Impact HZ-4 would also be reduced to less than significant with the implementation of M-HZ-4, which would properly test and remove any sources of lead-based paint located within any existing structures on site. Implementation of M-HZ-5 would reduce potential impacts from existing septic systems and ASTs through proper removal and/or closure prior to site preparation activities; therefore, impacts would be reduced to less than significant. Impact HZ-6 would also be reduced to less than significant with the implementation of M-HZ-6, which would ensure the storage and proper disposal of contaminated materials that may be encountered during the excavation and grading phase of site redevelopment. Impact HZ-7 would also be reduced to less than significant with the implementation of M-HZ-7, which would ensure observation for soil contamination during grading or excavation.







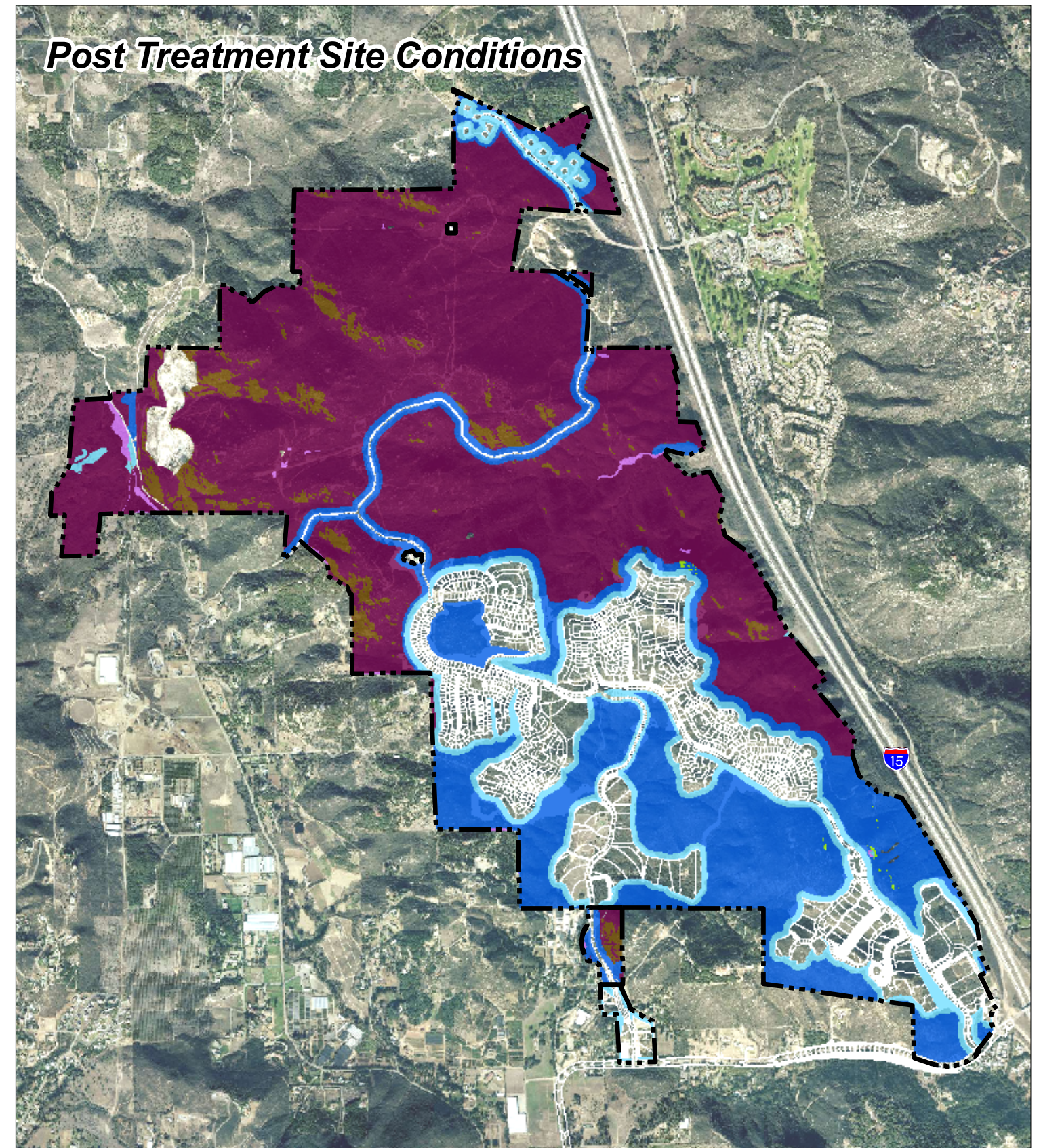
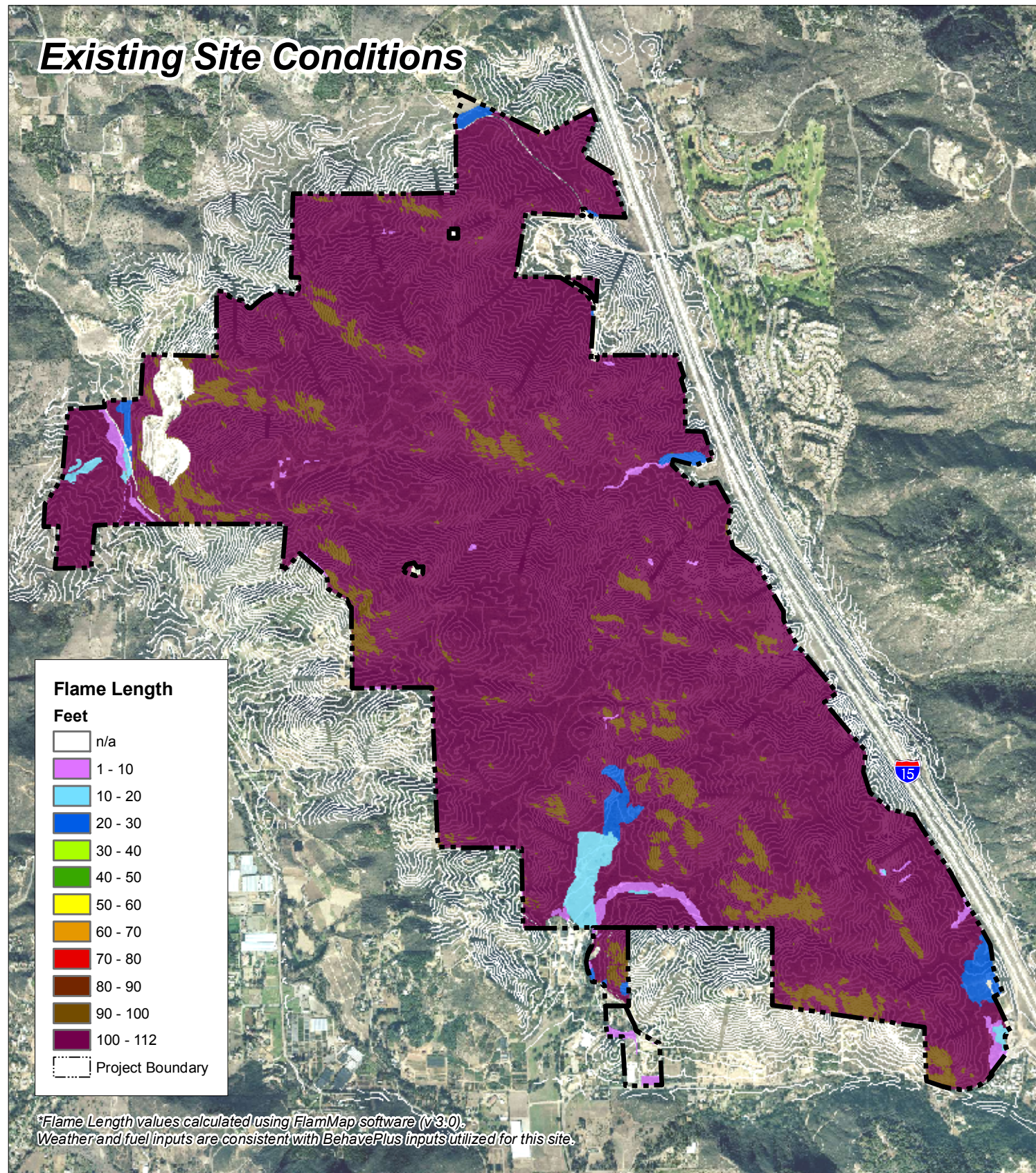
Fire Behavior Analysis - On-Shore Wind Pattern

**MERRIAM MOUNTAINS
SPECIFIC PLAN EIR**

0 1,100 2,200 4,400
Feet



FIGURE
3.3-3



Fire Behavior Analysis - Santa Ana Wind Pattern

MERRIAM MOUNTAINS
SPECIFIC PLAN EIR

0 1,100 2,200 4,400
Feet



FIGURE
3.3-4